REMARKS

Changes are made to the specification Examiner. New drawing Figures 1 and 2, each incorporating changes required by the Examiner, are submitted herewith. By this Amendment, Claims 1, 3, 4, 6, 10 through 12 and 14 are again presented for examination.

The Examiner has rejected Claims 1, 3, 4 and 6 as allegedly anticipated by the United States patent of Clark et al. Claims 10 and 11 are rejected as allegedly rendered obvious by Clark et al. while Claims 12 and 14 are objected to for dependence upon a rejected base claim but were indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

For the reasons that follow, all pending claims define patentable subject matter. This is particularly evident in view of the fact that the cited reference relied upon by the Examiner was cited and its significance discussed in the International Preliminary Report on Patentability issued December 28, 2006 in the International patent application upon which the present application is based (PCT/EP2004/013447), a copy of which accompanies this amendment.

Clark et al. is directed to a micromachined vibratory rate gyroscope in which rotation rate is measured by means of the Coriolis effect. As pointed out in the International Preliminary Report on Patentability discussed above, Clark et al. (Document D3, portions highlighted in yellow) describes a method and Coriolis gyroscope in which alternating forces are employed for quadrature nulling. This is clearly supported at column 8, lines 2 through 25 of Clark et al. wherein it is stated that the balancing force needs to be exactly proportional to the position of the proofmass along the x-axis. Since the position of the proofmass along the x-axis changes and the proofmass moves, the force applied in Clark et al. cannot be constant. Rather, an alternating force is produced by the electrodes 260, 262, 264, 268 (see Figure 14) and the principle is explained with reference to Figure 7C as cited above. Since the electrodes move in a reciprocal manner, capacitive coupling effects between the electrodes result in alternating forces (whose strength is regulated by the magnitude of the DC voltage) that are employed to compensate for the quadrature bias.

In contrast to Clark et al., wherein forces are generated to compensate for quadrature bias, in the present invention such bias is determined and removed at its source by correcting the source of such bias, namely, the non-orthogonality

of the excitation oscillation with respect to the sensing oscillation. In the claimed invention, the mutual alignment of the excitation oscillator with respect to the sensing oscillator is varied by appropriate alignment of the spring elements $5_1$, $5_2$, $5_3$, $5_4$, $6_1$, $6_2$ on which the oscillators 3, 4 are suspended. The quadrature bias is, thus, compensated at the point of origin. This results in a simplified electrode arrangement as constant forces are utilized rather than alternating forces for bias compensation. Thus, the elimination of quadrature bias at its point of origin in accordance with the claimed invention permits simplification of the compensation electrode system.

Claim 1 and the claims that depend therefrom are directed to a method for quadrature-bias compensation in a Coriolis gyro whose resonator is inthe form of a cooupled system comprising a first and a second linear oscillator in which the first oscillator is attached to a gyro frame of the Coriolis gyro by means of first spring elements and the second oscillator is attached to the first oscillator by means of second spring elements. Such method includes, among other limitations, "production of an electrostatic field in order to vary the mutual alignment of the two oscillators with respect to one another, with the electrostatic field producing a constant force which causes a change in the alignment of the first spring elements

and/or a change in the alignment of the second spring elements, and with the alignment/strength of the electrostatic field being regulated such that the determined quadrature bias is as small as possible." (Emphasis added.) Such limitation is neither taught nor implied by the cited art which addresses quadrature bias in an entirely difference manner as discussed above.

Claim 6 and the claims that depend therefrom are directed to a Coriolis gyro having a first resonator which is in the form of a coupled system comprising a first and a second linear oscillator, with the first oscillator being attached to a gyro frame of the Coriolis gyro by means of first spring elements, and the second oscillator being attached to the first oscillator by means of second spring elements. Such gyro includes, among other limitations, "a device for production of an electrostatic field by means of which the alignment of the two oscillators with respect to one another can be varied, in which the electrostatic field produces a constant force which varies the alignment angle of the first spring elements with respect to the gyro frame and/or the alignment of the angle of the second spring elements with respect to the first oscillator." (Emphasis added.) For the reasons discussed above, such a structure is neither taught nor implied by the art of record or any other prir art known to the Applicants.

For the foregoing reasons, all presently-pending claims define patentable subject matter. Prompt allowance and issuance of all pending claims are therefore earnestly solicited.

Respectfully submitted,

Elliott N. Kramsky
Registration 27,812
Attorney for Applicants